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ABSTRACT

The sources listed in this document are selected to provide guidance to students, parents, and teachers throughout the process of planning, developing, implementing, and competing in science fair activities. While sources range in suitability from elementary to high school levels, the emphasis is on materials for grades 9-12. This guide updates LC Tracer Bullet 88-4 (ED 303 339). More specialized sources are listed in Space Science Projects (89-3) and Environmental Science Projects (90-2). Not intended to be a comprehensive bibliography, this guide is designed--as the name of the series implies--to put the reader "on target." Sections include: (1) subject headings used by the Library of Congress, under which books on science fair projects can be located in most card, book, CD-ROM, and online catalogs; (2) basic texts; (3) specialized titles; (4) classroom experiments and activities; (5) handbooks, manuals, and encyclopedias; (6) bibliographies; (7) book/film reviews and "best book" sources; (8) abstracting and indexing services that index relevant journal articles and other literature; (9) journals that often contain articles relevant to science fair projects; (10) representative journal articles; (11) selected materials available in the Science Reading Room pamphlet boxes; (12) addresses and phone numbers of selected competitions; and (13) additional sources of information. (KR)

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SCIENCE FAIR PROJECTS

Compiled by Joyce Howland

TB 91-12

August 1991

SCOPE: Sources are selected to provide guidance to students, parents, and teachers throughout the process of planning, developing, implementing, and competing in science fair activities. While sources range in suitability from elementary to high school levels, the emphasis is on materials for grades 9-12. This guide updates *LC Science Tracer Bullet* 88-4. More specialized sources are listed in *Space Science Projects* (89-3) and *Environmental Science Projects* (90-2). Not intended to be a comprehensive bibliography, this guide is designed--as the name of the series implies--to put the reader "on target."

INTRODUCTION

Science fairs and projects. Grades 7-12. Washington, National Science Teachers Association, c1988. 70 p. Q182.3.S343 1988 and Pamphlet box*

First edition, 1984; second edition, 1985.

A collection of articles reprinted from *Science and Children*, *Science Scope*, and *The Science Teacher* (1981-87) to assist teachers in organizing a science fair, working with students, and establishing equitable judging procedures.

*Available in reference collection, Science Reading Room

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SUBJECT HEADINGS used by the Library of Congress, under which books on science fair projects can be located in most card, book, CD-ROM, and online catalogs, include the following:

SCIENCE--EXPERIMENTS (Highly relevant)
See also subdivision EXPERIMENTS under subject headings of particular interest, such as AIR; ASTRONOMY; BOTANY; BIOLOGY; GEOLOGY; OCEANOGRAPHY; OPTICS; SPACE SCIENCES
SCIENCE--EXHIBITIONS (Highly relevant)
SCIENCE PROJECTS (Highly relevant)
See also project subcategories such as ASTRONOMY PROJECTS and PHYSICS PROJECTS
SCIENCE--METHODOLOGY (Relevant)
SCIENCE--STUDY AND TEACHING (Relevant)
See also subdivisions STUDY AND TEACHING (SECONDARY); PROBLEMS, EXERCISES, ETC.; and AMATEURS' MANUALS under subject headings of interest, such as ASTRONOMY; ASTROPHYSICS; ELECTRONICS; PHYSICS
RESEARCH--METHODOLOGY (More general)

BASIC TEXTS

Bochinski, Julianne Blair. The complete handbook of science fair projects. New York, Wiley, c1991. 206 p. Q182.3.B63 1991
Discusses various aspects of science fairs and science fair projects including advice on choosing a topic, doing research, developing experiments, organizing data results, and presenting a project to the judges.

Bombaugh, Ruth. Science fair success. Hillside, N.J., Enslow Publishers, c1990. 96 p.
Bibliography: p. 85-87. Q182.3.B66 1990
A guide for choosing, designing, and completing an investigative science fair project, with an appendix listing prize winning projects by junior-high students.

Gardner, Robert. More ideas for science projects. New York, F. Watts, 1989. 144 p.
Bibliography: p. 137-141. Q182.3.G37 1989
Presents ideas for setting up science projects in the areas of astronomy, ecology, energy, biology, anatomy, botany, physics, and engineering.

Iritz, Maxine Haren. Blue ribbon science fair projects. Blue Ridge Summit, Pa., TAB Books, c1991. 120 p. Q182.3.I75 1991
Bibliography: p. 115-117.
Readers learn about the organization and development of school science projects from their beginnings as vague concepts, through the experiment and testing stages, and finally to completion and display.

Markle, Sandra. The young scientist's guide to successful science projects. New York, Lothrop, Lee & Shepard Books, c1990. 112 p. Q182.3.M37 1990
Experiments and investigations to teach necessary skills for choosing and conducting a science project.

Van Deman, Barry A., *and* Ed McDonald. Nuts & bolts: a matter of fact guide to science fair projects. Harwood Heights, Ill., Science Man Press, c1980. 62 p. Q105.A1V36
Bibliography: p. 59-60.
Outlines ways to produce more scientific, more creative, and more presentable science fair projects.

SPECIALIZED TITLES

Barr, George. Science research experiments for young people. New York, Dover Publications, c1989. 142 p. Q163.B347 1989
Originally published as *Research ideas for young scientists* in 1958.
Experiments to do at home include inquiries into the cold light of fireflies, the speed of ants, magnetic poles, and lung capacity. Includes guidelines for performing accurate research.

Bonnet, Robert L., *and* G. Daniel Keen. Botany: 49 more science fair projects. Blue Ridge Summit, Pa., TAB Books, c1991. 144 p. QK52.6.B64 1990
A collection of experiments and projects in botany, focusing on germination, vegetative reproduction, hydroponics, photosynthesis, plant stimulation, transport, and dispersal.

Brown, Bob. More science for you: 112 illustrated experiments. Blue Ridge Summit, Pa., TAB Books, 1988. 124 p. Q164.B8423 1988
Contains clear and concise explanations for scientific experiments.

Ford, R. A. Homemade lightning: creative experiments in electricity. Blue Ridge Summit, Pa., TAB Books, c1991. 198 p.
Bibliography: p. 187-194.

Gardner, Robert. Famous experiments you can do. New York, Franklin Watts, c1990. 142 p. QC25.G37 1990
Demonstrates scientific principles in the fields of chemistry and physics by replicating experiments performed by such scientists as Archimedes, Galileo, Antoine Lavoisier, and Sir Isaac Newton.

Gates, Julie M. Consider the earth: environmental activities for grades 4-8. Englewood, Colo., Teacher Ideas Press, 1989. 198 p. QH541.24.G38 1989
Bibliography: p. 183-193.
Describes activity-oriented experiences to enable anyone to discover and learn about different aspects of the environment. Areas covered include soil, plants, water, wildlife, sensory awareness, ecosystems, weather, and environmental problems.

Hunken, Jorie. Botany for all ages: learning about nature through activities using plants. Chester, Conn., Globe Pequot Press, c1989. 157 p. QK52.55.H87 1989
Bibliography: p. 151-154.
Based on the New England Wild Flower Society's education program for children, this book presents a commonsense approach to the study of plants. Many activities and projects are included.

Iovine, John. Homemade holograms: the complete guide to inexpensive, do-it-yourself holography. Blue Ridge Summit, Pa., TAB Books, c1990. 230 p. TA1542.I68 1990
Bibliography: p. 213-214.

McComb, Gordon. Gordon McComb's gadgeteer's goldmine: 55 space-age projects. Blue Ridge Summit, Pa., TAB Books, c1990. 406 p. TK9965.M35 1990
Sources: p. 365-394.
Bibliography: p. 395-400.
Includes high-tech experiments with lasers, fiber optics, power supplies, high-voltage devices, and robotics.

----- The laser cookbook: 88 practical projects. Blue Ridge Summit, Pa., TAB Books, 1988. 404 p. TA1675.M39 1988
Sources: p. 375-385.
Bibliography: p. 386-390.
Projects presented here vary from experimenting with laser optics to using lasers for light shows and beginning and advanced holography.

Mandell, Muriel. Simple science experiments with everyday materials. New York, Sterling Pub. Co., c1989. 128 p. Q164.M26 1989
Includes instructions for ninety-nine simple experiments that demonstrate basic scientific principles.

Moeschl, Richard. Exploring the sky: 100 projects for beginning astronomers. Chicago, Ill., Chicago Review Press, c1989. 339 p. QB64.M6 1989
Presents 100 astronomy projects and provides information on related mythology, pertinent history, cultures, and people. Written by a teacher for high school students studying astronomy.

More science experiments on file: experiments, demonstrations, and projects for school and home. New York, Facts on File, c1991. 288 p. (loose-leaf) Q182.3.M67 1990*
Includes 80 experiments and projects covering a range of scientific areas.

Prochnow, Dave. Superconductivity: experimenting in a new technology. Blue Ridge Summit, Pa., TAB Books, c1989. 138 p. QC611.92.P76 1989
Bibliography: p. 122-130.
Written for the advanced experimenter.

Schaaf, Fred. Seeing the sky: 100 projects, activities, and explorations in astronomy. New York, Wiley, c1990. 212 p. QB64.S427 1990
Bibliography: p. 207-208.
"Each project or experiment is easily performed with the naked eye and common household items."

Science experiments on file: experiments, demonstrations, and projects for school and home. New York, Facts on File, c1989. 300 p. (loose-leaf) Q182.3.S33 1989*

"The experiments, demonstrations and projects were developed by the winners and finalists in the Presidential Award for Excellence in Science and Mathematics administered by the National Science Foundation."

Intended as a resource for students, grades 6-12.

Tannenbaum, Beulah, *and* Harold E. Tannenbaum. Making and using your own weather station. New York, F. Watts, c1989. 111 p. QC981.3.T36 1989

Bibliography: p. 107-108.

Gives instructions for constructing simple weather instruments and how to use them to predict and record the weather.

Wellnitz, William R. Science magic for kids: 68 simple & safe experiments. Blue Ridge Summit, Pa., TAB Books, c1990. 116 p. Q164.W35 1990

Over sixty science experiments test the properties of colors, food, air, soap bubbles, heat, light, plants, and magnets.

Wood, Robert W. Physics for kids. Blue Ridge Summit, Pa., TAB Books, 1989-91. 5 v.

Contents: 49 easy experiments with heat (c1990. 150 p. QC256.W66 1990).--49 easy experiments with mechanics (c1989. 150 p. QC127.4.W66 1989).--49 easy experiments with electricity and magnetism (c1990. 134 p. QC527.2.W66 1990).--49 easy experiments with optics (c1990. 138 p. QC381.W88 1990).--49 easy experiments with acoustics (c1991. 150 p. QC225.5.W66 1991).

CLASSROOM EXPERIMENTS AND ACTIVITIES

Allen, Dorothea. Science demonstrations for the elementary classroom. West Nyack, N.Y., Parker Pub. Co., c1988. 266 p. LB1585.A46 1988

Bibliography: p. 265-266.

Contains over 100 demonstration lessons in the physical, environmental and life sciences.

Butzow, Carol M., *and* John W. Butzow. Science through children's literature: an integrated approach. Englewood, Colo., Teacher Ideas Press, 1989. 240 p. LB1585.B85 1985

Carin, Arthur A., *and* Robert B. Sund. Teaching science through discovery. 6th ed. Columbus, Ohio, Merrill, c1989. 575 p. LB1585.C28 1989

Bibliography: p. 551-554.

See especially "Guided discovery science resource activities," p. 340-528.

Collette, Alfred T., *and* Eugene L. Chiappetta. Science instruction in the middle and secondary schools. 2nd ed. Columbus, Ohio, Merrill Pub. Co., c1989. 471 p. Q183.3.A1C637 1989*

See especially "Science projects, science fairs, field experiences," p. 176-199.

Davis, Patricia M. Gerbils, planes, and dog food: a science fair for second graders. Science and children, v. 27, Nov./Dec. 1989: 24-25. LB1585.S34 and Pamphlet box*

DeVito, Alfred, *and* Gerald H. Krockover. Creative sciencing: ideas and activities for teachers and children. 2nd ed. Boston, Little, Brown, c1980. 388 p. LB1585.D433 1980
Bibliography: p. 370-384.
Comprehensive source of ideas and activities for use in the elementary school classroom.

Ecklund, Mary C. Hands-on activities for fourth and fifth graders. Science activities, v. 27, spring 1990: 14-19. Q181.A1S29 and Pamphlet box*

Friedl, Alfred E. Teaching science to children: an integrated approach. New York, Random House, c1991. 318 p. LB1585.F69 1991
Most activities in book can be presented by a typical elementary school teacher without a strong science background.

Halkitis, Perry N. Activate your science class. Instructor, v. 99, Aug. 1989: 34-37. L11.N74

Kupfer, Andrew. Turning students on to science. Fortune, v. 121, spring 1990: 82-84. HF5001.F7

McCarthy, Monica, *and* Tom Gorman. Building excitement in the classroom. Science teacher, v. 57, May 1990: 43-49. Q181.538

Nauman, Ann K., *and* Edward L. Shaw. Science in the library. Science activities, v. 26, Sept./Oct. 1989: 26-28. Q181.A1S29 and Pamphlet box*

Stangl, Jean. The tools of science: ideas and activities for guiding young scientists. New York, Dodd, Mead, c1987. 147 p. LB1585.3.S72 1987
Activities which provide hands-on experiences are included.

Sullivan, Dan M. A program of science demonstrations by college students. Journal of chemical education, v. 67, Oct. 1990: 887-888. QD1.J93 and Pamphlet box*

Tephly, Joan B. A rare collection of teaching ideas. Science and children, v. 27, Feb. 1989: 16-19. LB1585.S34

Trowbridge, Leslie W., *and* Rodger W. Bybee. Becoming a secondary school science teacher. Columbus, Ohio, Merrill Pub. Co., c1990. 504 p. Q183.3.A1T76 1990
See especially "Teaching science activities," p. 437-495.

Waxter, Julia B. The science cookbook: experiment-recipes that teach science and nutrition. Belmont, Calif., Fearon Teacher Aids, c1981. 82 p. TX364.W39
Teaches concepts of science and nutrition through cooking. Students develop an awareness of chemistry, physics and biology.

HANDBOOKS, MANUALS, AND ENCYCLOPEDIAS

Adams, Richard C. Science with computers. New York, F. Watts, c1987. 128 p. Q183.9.A33 1987
Bibliography: p. 121-123.
Discusses how to simplify science projects by using computers to organize data, do calculations, or suggest new avenues of study.

Bleifeld, Maurice. Experimenting with a microscope. New York, F. Watts, c1988. 110 p. QH278.B57 1988
Bibliography: p. 103-105.
Provides a brief history of the microscope and discusses how it works, its parts, the preparation of slides, and how it is used to view various specimens.

Darr, Jack, *and* Delton T. Horn. How to test almost everything electronic. Blue Ridge Summit, Pa., TAB Books, c1988. 175 p. TK7878.D3 1988
Covers electronic tests and measurements, how to make them with all kinds of electronic test equipment, and how to interpret the results.

Loiry, William S. Winning with science: the 1989-90 guide to science research and programs for students. Washington, Loiry Publications, c1990. 319 p. Q180.55.M4L64 1990*
A guide for junior and senior high school students, for doing science research, engaging in science competition, and becoming involved in science programs. Lists programs (grants, trips, employment, etc.) available in the United States and abroad.

The Marshall Cavendish library of science projects. Freeport, N.Y., Marshall Cavendish, c1986-89. 12 v.
Contents: Parker, Steve. Water (1986. 43 p. Q164.M28 1986).--Parker, Steve. Plants (1986. 43 p. QK52.6.P37 1986).--Parker, Steve. Mechanics (1986. 43 p. QC127.4.P37 1986).--Parker, Steve. Light (1986. 43 p. QC360.P37 1986).--Parker, Steve. Earth (1986. 43 p. QE29.P38 1986). Parker, Steve. Human body (1986. 43 p. QP37.P27 1986).--Lafferty, Peter. Electricity and magnetism (1989. 47 p. QC527.2.L33 1989).--Lafferty, Peter. Heat (1989. 47 p. QC256.L34 1989). Rogers, Daniel. Weather. (1989. 47 p. QC981.3.R63 1989).--Lafferty, Peter. Astronomy (1989. 47 p. QB47.L24 1989).--Stidworthy, John. Fossils (1989. 47 p. QE714.5.-S76 1989).--Lafferty, Peter. Communications (1989. 47 p. TK5102.4.L34 1989).
Note: Titles of the books by Steve Parker all begin *The Marshall Cavendish science project book of ...*

Moore, John H., *and* others. Building scientific apparatus: a practical guide to design and construction. 2nd ed. Redwood City, Calif., Addison-Wesley, c1989. 549 p. Q185.M66 1989

Pentz, Mike, *and* Milo Shott. Handling experimental data. Milton Keynes, Eng., Philadelphia, Open University Press, c1988. 95 p. Q182.3.P46 1988
Guides students in collecting, handling, recording and evaluating experimental data.

Science & math events: connecting & competing. Washington, National Science Teachers Association, c1990. 187 p. Q182.3.S3 1990*

Provides guidance and encouragement for teachers in the development of science and math activities. Gives information on organizing a science fair and includes a judging form and student science fair application.

Wallace, Diane A., *and* Philip L. Hershey. How to master science labs. New York, F. Watts, c1987. 127 p. Q164.W24 1987

Bibliography: p. 118-120.

Explains methods and techniques used in lab experiments, covering such topics as heating, measuring, and collecting substances, doing dissections, using lab equipment, and gathering data. Includes instructions for actual experiments.

World of science. New York, Facts on File, c1984-86. 25 v. Q121.W675

A twenty-five-volume encyclopedia of scientific subjects; v. 22 is devoted to science projects.

BIBLIOGRAPHIES

Iatridis, Mary D. Teaching science to children: a resourcebook. New York, Garland, c1986. 110 p. Z5818.S3I25 1986

"The four chapters of this annotated bibliography cover science books for elementary schools, science activity books, general science books, and science books for special education."

Pilger, Mary Anne. Science experiments index for young people. Englewood, Colo., Libraries Unlimited, c1988. 239 p. Q182.3.P735 1988b*

Available also in a software version.

An index to science experiments and activities in almost 700 books, with descriptions, location codes, and cross-indexing.

Science fair project index, 1960-1972. Compiled by the staff of the Science and Technology Division of the Akron-Summit County Public Library. Edited by Janet Y. Stoffer. Metuchen, N.J., Scarecrow Press, c1975. 728 p. Q182.3.S34 1975*

Bibliography: p. 713-728.

Science fair project index, 1973-1980. Edited by Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, c1983. 723 p. Q182.3.S34 1975 Suppl.*

Bibliography: p. 709-723.

Science fair project index, 1981-1984. Edited by Cynthia Bishop, Deborah Crowe, Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, c1986. 686 p. Q182.3.S34 1975 Suppl. 2*

Bibliography: p. 680-686.

Note: A new edition for years 1985-1989 will be published in 1991.

Science for children: resources for teachers. National Science Resources Center, Smithsonian Institution, National Academy of Sciences. Washington, National Academy Press, c1988. 176 p. Z5818.S3S38 1988*

Spence, Alex. Science project information index, 1973-1983. Toronto, Infolib Resources, c1984. 282 p. Q182.3.S64 1984
Bibliography: p. 279-282.

----- The Second science project information index. Toronto, Infolib Resources, c1986. 144 p. Pamphlet box*
Bibliography: p. 141-144.

Thousands of science projects: classified titles of exhibits shown at science fairs and/or produced as projects for the Westinghouse Science Talent Search. Compiled by Science Service. 2nd ed. Edited by Ruby Yoshioka. Washington, The Service, c1987. 96 p. Q182.3.T48 1987

BOOK/FILM REVIEWS AND "BEST BOOK" SOURCES

Appraisal: science books for young people. v. 1- winter 1967- Boston, Children's Science Book Review Committee. Z7401.A63

Kennedy, DayAnn M., Stella S. Spangler, *and* Mary Ann Vanderwerf. Science & technology in fact and fiction: a guide to young adult books. New York, Bowker, c1990. 363 p. Z7401.K46 1990b*

Malinowsky, H. Robert. Best science and technology reference books for young people. Phoenix, Ariz., The Oryx Press, c1991. 216 p.
Z7401.M277 1991* and Best Books vertical file*

The Museum of Science and Industry basic list of children's science books. 1973/1984- Compiled by Bernice Richter and Duane Wenzel. Chicago, American Library Association, c1985- Z7401.M87
Kept up to date with annual supplements.

New York Public Library. New technical books. v. 1- June/Aug. 1915- New York. Z5854.N542*

O'Connell, Susan M., Valerie J. Montenegro, *and* Kathryn Wolff. The best science books and A-V materials for children. Washington, American Association for the Advancement of Science, c1988. 335 p. (AAAS publication 87-11)
Z7401.027 1988*

Outstanding science trade books for children in 1990. Science and children, v. 28, Mar. 1991: 30-37. Best Books vertical file*
These books were chosen for their accuracy, readability, and pleasing format, and are aimed primarily at children in grades K-8. Each entry is annotated.

Powell, Russell H., *and* James R. Powell, Jr. Core list of books and journals in science and technology. Phoenix, Ariz., Oryx Press, c1987. 134 p. Z7401.P778 1987*

Sapp, Gregg. Best sci-tech books of 1990: the quest for science literacy. Sixty titles libraries should acquire in order to ensure public understanding of basic scientific and technical concepts. Library journal, v. 116, Mar. 1, 1991: 58-64.
An annual feature of the March 1 issue. Z671.L7 and Best Books vertical file*

Science & technology: a purchase guide for branch and public libraries. Pittsburgh, Carnegie Library of Pittsburgh, 1990. 181 p. Best Books vertical file*
Published yearly, this is an annotated bibliography of new books. The titles are intended primarily for the general adult reader, but a number of books of interest to young persons are also represented. A special feature is the selection of books for libraries which buy only 50-100 titles each year.

Science books & films. v. 1- Apr. 1965- Washington, American Association for the Advancement of Science. Z7403.S33*

Science books for children: selections from Booklist, 1976-1983. Selected by Denise Murcko Wilms. Chicago, American Library Association, c1985. 183 p. Z7401.S363 1985*

Student books I. New scientist, v. 130, Apr. 20, 1991: 50-60. Q1.N52
A selection by university teachers of texts for undergraduates in computer science, physics, astronomy, mathematics, chemistry, earth sciences, biochemistry, biology and psychology. Student books II will appear in early autumn 1991.
This feature appears annually, e.g., Apr. 28, 1990, Apr. 22, 1989, Apr. 28, 1988, Apr. 30, 1987.

Wolff, Kathryn, Susan M. O'Connell, *and* Valerie J. Montenegro. AAAS science book list, 1978-1986. Washington, American Association for the Advancement of Science, 1986. 568 p. (AAAS publication 85-24) Q181.A1A68 no. 85-24*

ABSTRACTING AND INDEXING SERVICES that index relevant journal articles and other literature are listed below. Some suggested terms are given as aids in searching. The following indexes are available in most public and college libraries.

Current Index to Journals in Education (1969-) Z5813.C8
See: Science Activities
Science Experiments
Science Fairs
Science Projects

Education Index (1929-) Z5813.E23
See: Science--Activities
Science--Exhibits
Science--Experiments
Science--Projects

General Science Index (1978-) Z7401.G46*
See: Science Fairs, School
Science--Exhibitions

Magazine Index Available in several formats in LC
See: Science--Exhibitions
Science Projects

Readers' Guide to Periodical Literature (1900-) AI3.R45
See: Science Fairs
Science Experiments

Resources in Education (1966-) Z5813.R4
See: Science Activities
Science Experiments
Science Fairs
Science Projects

Vertical File Index (1932/1934-) Z1213.P2V48
See: Science--Study and Teaching
Subject of interest, e.g., Astronomy, Chemistry, etc.

Students may also need to use subject-oriented abstracting and indexing services for information on the subject of their projects. Sample titles are listed below. These may be available only in large or specialized libraries. A librarian may be able to suggest additional titles.

Applied Science & Technology Index (1913-)
Astronomy and Astrophysics Abstracts (1969-)
Bibliography and Index of Geology (1933-)
Biological Abstracts (1926-)
Biological & Agricultural Index (1916-)
Chemical Abstracts (1907-)
Electrical & Electronics Abstracts (1898-)
Energy Research Abstracts (1976-)
Engineering Index (1884-)
Environment Abstracts (1974-)
Food Science and Technology Abstracts (1969-)
International Aerospace Abstracts (1961-)
Mathematical Reviews (1940-)
Metals Abstracts (1968-)
Meteorological & Geoastrophysical Abstracts (1950-)
Physics Abstracts (1898-)
Pollution Abstracts (1970-)
Psychological Abstracts (1927-)
Zoological Record (1864-)

JOURNALS that often contain articles relevant to science fair projects are:

American Biology Teacher QH1.A275
Journal of Chemical Education QD1.J93
Journal of College Science Teaching Q183.U6J68
Journal of Geological Education QE40.J6
Physics Teacher QC30.P48
See particularly "String & sticky tape experiments" and "Doing physics," features which appear at irregular intervals.
Popular Mechanics T1.P77
Science Activities Q181.A1S29
Science and Children LB1585.S34
Science News Q1.S76
Science Scope Not in LC collections
Science Teacher Q181.S38
Scientific American T1.S5
Sky & Telescope QB1.S536

REPRESENTATIVE JOURNAL ARTICLES

Carlisle, Robert W., *and* Burton C. Deeter. A research study of science fairs. Science and children, v. 26, Jan. 1989: 24-26. LB1585.S34 and Pamphlet box*

Cowen, Ron. "Go for it, kid." Science news, v. 139, Feb. 23, 1991: 120-123. Q1.S76

Chiles, James R. At science fairs there's not much playing around. Smithsonian, v. 21, Sept. 1990: 62-73. AS30.S6 and Pamphlet box*

Farmer, Mike. Science project data bases. Journal of chemical education, v. 67, Oct. 1990: A257-A258. QD1.J93 and Pamphlet box*

Goodyear, N. L. The use of a regional science fair to generate an organic collaboration. Journal of college science teaching, v. 20, Sept./Oct. 1990: 2-11. Q183.U6J68

Iona, M. Popular science experiments. Physics teacher, v. 27, Sept. 1989: 478. QC30.P48

Jones, Gail. Design a science fair winner! Science scope, v. 12, Oct. 1988: 10-11. Pamphlet box*

Knight, Ruth. How to take the "sigh!" out of science. Science and children, v. 27, Nov./Dec. 1989: 42-45. LB1585.S34 and Pamphlet box*

Levin, K. N., *and* R. E. Levin. How to judge a science fair. Science teacher, v. 58, Feb. 1991: 43-45. Q181.S38

Osborne, Ed. Getting your ag students involved in science fairs. The Agricultural education magazine, v. 62, Jan. 1990: 17. S530.A3 and Pamphlet box*

Rivard, L. A teacher's guide to science fairing. School science and mathematics, v. 89, Mar. 1989: 201-207. S1.S28

Stone, Judith. Under the volcano. Discover, v. 11, Oct. 1990: 106-110. Q1.D57 and Pamphlet box*

Williams, W. R., *and* P. T. Briggs. Science experiments in the middle school. Middle school journal, v. 19, May 1988: 19-21. L11.M65

SELECTED MATERIALS available in the Science Reading Room pamphlet boxes include:

Blueford, Joyce R. A guide to hands-on science. Science and children, v. 26, Jan. 1989: 20-21.

Carey, Jane H. Science fun: have a field day in the gym! Science and children, v. 27, Oct. 1990: 17-19.

Flick, Larry. Scientist in residence program improving children's image of science and scientists. School science and mathematics, v. 90, Mar. 1990: 204-214.

Foley, Lauren. Science-by-mail. Science and children, v. 26, Apr. 1989: 26-27.

Fordyce, Robert P. Science project photography. Carolina tips, v. 50, Nov. 1, 1987: 41-43.

Halpin, Myra J., *and* Janice Coffey Swab. It's the real thing--the scientific method. Science and children, v. 27, Apr. 1990: 30-31.

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SELECTED COMPETITIONS

American Mathematics Competitions

Dr. Walter E. Mientka
Executive Director
American Mathematics Competitions
University of Nebraska-Lincoln
Lincoln, NE 68588
Telephone: (402) 472-2257

Dow Presents: The Art of Science

Talbert B. Spence, Director
Educational Program Department
New York Academy of Science
2 East 63rd Street
New York, NY 10021
Telephone: (212) 838-0230

International Science & Engineering Fair

Science Service
1719 N Street, N.W.
Washington, DC 20036
Telephone: (202) 785-2255

Junior Science and Humanities Symposia

JSHS Office
The Academy of Applied Science
98 Washington Street
Concord, NH 03301
Telephone: (603) 228-4520

National Bridge Building Contest

Earl Zwicker
Department of Physics
Illinois Institute of Technology
Chicago, IL 60616
Telephone: (312) 567-3384

National Future Farmers of America Agriscience Student Recognition Program

Carol Duval
Program Coordinator
National Future Farmers of America Organization
National Future Farmers of America Center
5632 Mt. Vernon Memorial Highway
P.O. Box 15160
Alexandria, VA 22309-0160
Telephone: (703) 360-3600

National Health Occupations Students of America Competitive Events Program

Jim Koeninger
Health Occupations Students of America
6309 North O'Connor Road
Suite 215
Irving, TX 75039-3510
Telephone: (214) 506-9780

National Junior Horticultural Association Projects

Jan Hoffman
National Junior Horticultural Association
441 E. Pine Street
Fremont, MI 49412
Telephone: (616) 924-5237

Space Science Student Involvement Program

National Science Teachers Association
1742 Connecticut Avenue, N.W.
Washington, DC 20009
Telephone: (202) 328-5800

Westinghouse Science Talent Search

Science Service
1719 N Street, N.W.
Washington, DC 20036
Telephone: (202) 785-2255

For additional competitions, consult ***Winning With Science*** by William S. Loiry and ***Science & Math Events: Connecting & Competing*** published by the National Science Teachers Association.

ADDITIONAL SOURCES OF INFORMATION

American Association for the Advancement of Science
Directorate for Education and Human Resources
1333 H Street, N.W.
Washington, DC 20005-4792
Telephone: (202) 326-6755

Association of Science-Technology Centers
1413 K Street, N.W.
Tenth Floor
Washington, DC 20005
Telephone: (202) 371-1171

Department of Science, Space and Technology
National Science Teachers Association
5112 Berwyn Road
Third Floor
College Park, MD 20740
Telephone: (301) 474-0487

Sponsors, with NASA, the NEWMAST (NASA Educational Workshops for Math and Science Teachers) Workshops held during the summer at NASA Teacher Resource Centers throughout the country, the NEWEST (NASA Educational Workshops for Elementary School Teachers) Workshops, and the Space Science Student Involvement Program.

Division of Materials Development, Research & Informal Science Education
National Science Foundation
1800 G Street, N.W.
Washington, DC 20550
Telephone: (202) 357-7452

National Science Teachers Association
1742 Connecticut Avenue, N.W.
Washington, DC 20009
Telephone: (202) 328-5800

Publishes *Science Fairs and Projects*, *Science and Children*, *Science Scope*, and *Journal of College Science Teaching*.

Science Service
1719 N Street, N.W.
Washington, DC 20036
Telephone: (202) 785-2255

Administers the International Science and Engineering Fair and the Westinghouse Science Talent Search.